lapse automatically into a condition approaching sleep. Experiments have confirmed this conclusion, also. It is interesting that this indefatigability of the nerve centers must be in close connection with the periodicity of the function of the centers. According to our observations and to those of other workers, periodic chemical reactions must take place in these centers. These reactions in their turn bring about periodic electromotive forces.

This parallelism between indefatigability and periodicity of function is best illustrated on the heart and on respiration.

The entire theory is based on the premise that the difference in the intensity of perception, in general, depends on the difference in the ionic concentration in the retina. Here arises a contradiction with the basic physiological conceptions.

If the intensity in stimulation and the magnitude of excitation depends upon the concentration of the ions in the retina, then the nerves ought to be in a different state of excitation depending on the ionic concentration. On the other hand, we know that the nerve may be either in a state of excitation or non-excitation. Consequently, the state of excitation of a nerve can not be of varying degrees. The explanation of the seeming contradiction is very simple. It is necessary to bear in mind that the retina consist of individual cells and that light, on the other hand, according to the present conception of the physicist, possesses a corpuscular structure and that there exists, as it were, a number of small balls, each carrying a definite quantum of energy on striking the retina. The number of these balls, quanta of energy, gives us the perception of the intensity of light. Consequently, the number of stimulated rods and the number of stimulated nerve fibers determine the sensation of intensity of light. From this it follows that when the number of the stimulated units is identical, the intensity of perception will always be constant. Also, if the same number of stimulated units will be situated, on either a small or a large surface of the retina, the effect will remain the same. All these conclusions were corroborated. You see that the present theory not only gave a quantitative coordination of the facts already known, but also was instrumental in the discovery of new facts. This is all that a physico-chemical theory is expected to accomplish.

P. LASAREFF

PLANS FOR THE ENLARGEMENT OF THE MARINE BIOLOGICAL LABORATORY

IN response to the request of the editor the following statement is made:

The enlargement of the facilities and endowment of the Marine Biological Laboratory is a matter of interest to the scientific public in a special sense, because its ownership and control are vested in the biologists of the country in precisely the same sense as their national biological societies. For this reason, also, the development of the laboratory is a matter of interest to all institutions engaged in biological research; the facilities of the laboratory are at their service and constitute an enlargement of their own laboratories and equipment. The Marine Biological Laboratory thus helps towards raising the research opportunities of the smaller institutions more nearly to the level of the larger and better equipped ones. Through its system of subscribing and cooperating institutions the laboratory provides for a nominal sum research opportunities that would cost each institution many times the amount to provide independently. This is important even for the largest institutions, and indispensable for all the smaller institutions that aim to maintain the research spirit of members of their staffs.

Up to the present year the Marine Biological Laboratory has been supported by fees for working places, by sales of biological supplies, certain minor sources of income, and by a contribution of $20,000 a year from the Friendship Fund endowed by Mr. C. R. Crane, president of the board of trustees of the laboratory. For about five years the demands for accommodations have far exceeded the capacity of the laboratory. Plans for enlargement have been in preparation all this time, and, indeed, for a longer period.

At the beginning of this year the laboratory received direct gifts amounting to $1,400,000 (from the Rockefeller Foundation $500,000, Mr. John D. Rockefeller, Jr., $400,000, The Friendship Fund $400,000, and the Carnegie Corporation $100,000), and an undertaking from another source to furnish additional sums needed to cover the increased cost of building arising since the original plans were prepared. Of the direct gifts, $900,000 has been placed in trust as endowment, the balance being available for building. The receipt of these gifts was due to the hearty cooperation of scientific men supported by the recommendations of the National Research Council.

The greatest needs foreseen by the management of the laboratory, apart from mere expansion, were the increase of facilities for all the more delicate and precise forms of biological experiment, comprised largely in the fields of biochemistry and biophysics, and for enlargement of the library. Advantage was also taken of the situation to provide an adequate auditorium for the evening lectures on research topics that have been a conspicuous feature of the summer session for many years.

Ground was broken for the new building in March; it is expected that it will be completed and equipped in less than a year. The building will be of heavy fireproof construction, calculated to be free from disturbing vibrations. Provision for experiments with electricity, light, X-rays and temperature will be unusually complete. Extensive additional equipment for physiological work is also provided. The building will include one general and fifteen private biochemical laboratories, two general biophysical laboratories, one general and twenty-seven private laboratories of the biological type, but arranged *en suite* with the biochemical laboratories, five experimental dark-rooms, a suite of four rooms for X-ray work, a photographic and developing room, draughting room, three special balance rooms, administration offices and committee rooms, a galvanometer room, and (in the basement) store-rooms, storage battery room, refrigerating equipment and constant temperature rooms, and a machine shop. The library wing will have stock rooms with capacity of about 100,000 volumes, a large reading room and study rooms, and librarian's offices. The auditorium will seat 545.

Future needs have been anticipated to some extent in the plans and it is hoped that the new accommodations added to those already in existence will be adequate for some years. The administration of the laboratory looks confidently for the continuation of the support so generously extended for many years by the cooperating institutions, seventy in number in 1923, and for the moral backing of the biologists of the country. The laboratory will have more to offer; if support was deserved before, it will be more so in the future. The responsibility for developing the laboratory as one of the chief centers of biological research of the world rests squarely upon the shoulders of the biologists and the research institutions of the country.

FRANK R. LILLIE,
Director

SCIENTIFIC EVENTS

BRITISH BOTANICAL CONFERENCE[1]

IN view of the fact that many overseas botanists may be expected to visit England this year in connection with the British Empire Exhibition at Wembley, an Imperial Botanical Conference will be held at the Imperial College of Science and Technology on July 7–16. The arrangements for this conference are in the hands of an executive committee of which Sir David Prain is chairman, Dr. A. B. Rendle, treasurer, and Mr. F. T. Brooks, secretary. The preliminary program shows that discussion will be arranged upon general topics likely to interest both home and overseas botanists. Thus the promotion of a botanical survey of the empire is to be introduced by Dr. A. W. Hill, Mr. A. G. Tansley and a number of overseas botanists are to discuss vegetation surveys and training in field geology; Professor R. H. Biffen introduces the subject of plant breeding, Professor Percival the importance of selection. Plant physiology is represented by discussions upon cold storage of apples and crop physiology; under plant pathology, tropical experience will be utilized in the discussion of sugar-cane mosaic, bud-rot of coco-nut, and brown bast of rubber, whilst the relations of plant pathology to genetics and to silviculture will be considered in separate discussions. Professor J. B. Farmer will open a discussion upon the important question of interchange of staff and post-graduate students between overseas and home universities and the desirability of providing further facilities for botanical research within the tropics and dominions. The program outlined is certainly of great imperial significance, and it is only to be regretted that the executive has not seen its way to bring some of these problems before a wider overseas audience in the conference halls at Wembley itself. Whilst the opportunities for meeting and discussion provided by the conference will no doubt be welcomed by overseas botanists, there is no doubt that the occasion is peculiarly appropriate for the numerous home botanists, many of whom will be deprived of their usual annual opportunity for botanical "shop" with their colleagues by their inability to attend Section K at its distant rendezvous in Toronto. All such botanists will be very welcome at the conference, and they are asked to notify Mr. F. T. Brooks, 31 Tenison Avenue, Cambridge, of their intention to be present. A subscription of one pound toward the expenses of organization is being asked from those proposing to attend.

[1] From *Nature*.

FOURTH INTERNATIONAL CONFERENCE ON SOIL SCIENCE

THE International Conference on Soil Science, to be held in Rome from May 12 to 19, will be the fourth of a series. The first conference was held in 1909 in Budapest, the second in 1911 in Stockholm and the third in 1922 in Prague. The organizing committee distributed last February a provisional program of the conference, which promises to be important.

The Italian Minister of National Economy, Professor Corbino, has promised to be the honorary chairman. The conference will be held at the International Institute of Agriculture in Rome.

Subscriptions are being received from all parts of the world and the number of communications and reports to be presented amounts already to over 200.